Shropshire Botanical Society Newsletter, Autumn 2014

Colchicum autumnale Meadow Saffron, in June, Derrington Meadows, Mags Cousins

Colchicum autumnale Meadow Saffron, in September, Llynclys Common, Ruth Dawes

Shropshire Botanical Society Newsletter No.29

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Past copies of the newsletter are available as pdfs from the Shropshire Botanical Society website: http://www.bsbi.org.uk/shropshire.html

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Thanks are due to the Shropshire Wildlife Trust for their generous support of our society. They have donated money to support our work in recognition of the importance of the contribution we make to understanding Shropshire botany.

Society Matters Mags Cousins

Firstly huge congratulations and thanks to the tremendously dedicated individuals who have successfully completed the eagerly awaited all new updated Flora & Vegetation of Shropshire. The Flora can be ordered via the Botanical Society of Britain and Ireland (BSBI) website: http://bsbi.org.uk/shropshire.html.

After a long and wonderful summer for recording which stretched right through the driest September on record we have lots of interesting reports and articles for you to enjoy. The County Recorder's report contains some excellent finds this year; there are more top tips on identification of grasses and Sphagna; reports on reserve management at Llanymynech Rocks and Granville reserves; and a refresher on recording for all of us who submit records or who would like to start but are not sure how.

Winter Meeting Saturday 13th December 2014, 2-4 pm

Preston Montford Field Studies Centre, Montford Bridge, Shrewsbury, SY4 1DX

We will be gathering for our usual festive social, secondhand book sale and talk. Bring any pre-loved natural history books that you wish to find a new home for and raise some money for the Shropshire Botanical Society.

We are fortunate to have yet another eminent speaker join us. This year Dr Ian Denholm will be giving a talk entitled:

"From Orchids to Agriculture and Back Again"

Dr Ian Denholm is President of the Botanical Society of Britain and Ireland and is joint referee for *Dactylorhiza* (spotted orchids). He is a researcher at the University of Hertfordshire, Department of Human and Environmental Sciences.

Other Dates for your diary

Shropshire Botanical Society Meetings

Saturday 28th March 2015, Spring Meeting and AGM, speaker Dr Jonathan Mitchley.
Saturday 12th December 2015, Christmas social, speaker Dr Jonathan Briggs.

Both events will take place at our usual venue, Preston Montford Field Studies Centre, Montford Bridge, Shrewsbury, SY4 1DX.

Recorder's Report

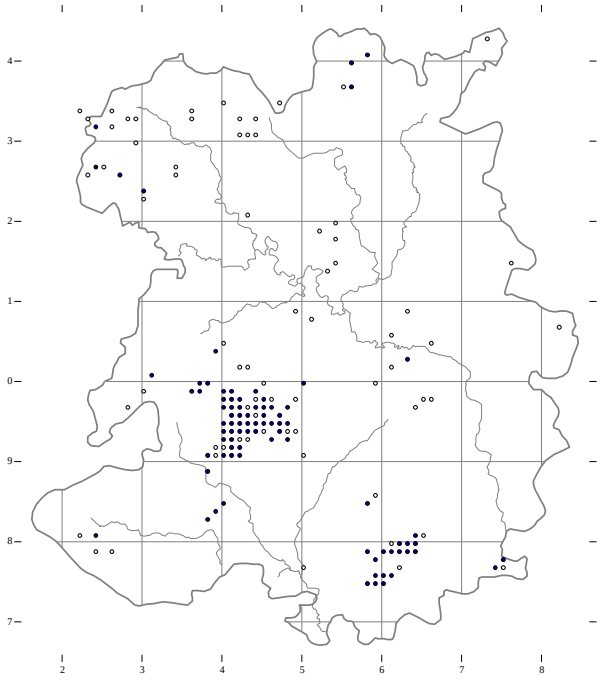
Alex Lockton & Sarah Whild

New records

Epilobium lanceolatum Sebast. & Mauri, **Spear-leaved Willowherb**, is common mainly in the south-west of England, with Shropshire on the northern edge of its range. It is typical of gardens and roadsides and was found on a pavement in Castlefields, Shrewsbury (SJ496130, Whild) on 29th May 2014. This is the first confirmed record for the county.

Silene gallica L., **Small-flowered Catchfly**, is an archaeophyte and former weed of arable fields. This year (15th June 2014) it appeared in a sown wildflower meadow at Winwoods Farm (SO732775), where it was spotted by Rosemary Winnall. The last record of it was in 2009, when Nick Button found a single plant in a field at Bryn Mawr that was in transition to organic farming. It is possible that the Winwoods plant came up from buried seed or was inadvertently introduced with a seed mix – this is always a problem when people plant conservation mixes and unexpected things appear. The general advice for nature conservationists in Shropshire is not to plant anything; instead, manage your land for the appropriate habitat and see what you get naturally. Or at least do this at first and only resort to more industrial techniques if that does not succeed.

Anagallis tenella (L.) L., **Bog Pimpernel**, turned up by the pond on Prees Heath this year (SJ562367, Lockton & F. Wilson, 24th August). It was last recorded there in 1909 by A.H. Wolley-Dod. This is another indication that Prees Heath could reward conservation efforts if a better understanding of its ecology could lead to more appropriate management. It seems increasingly likely that Prees Heath could be very similar to Brown Moss in supporting grass-heath and wetland habitats, rather than just the dry heath that occurs on the old airfield. Bog Pimpernel is now rare in the lowlands but quite widespread in upland habitats.



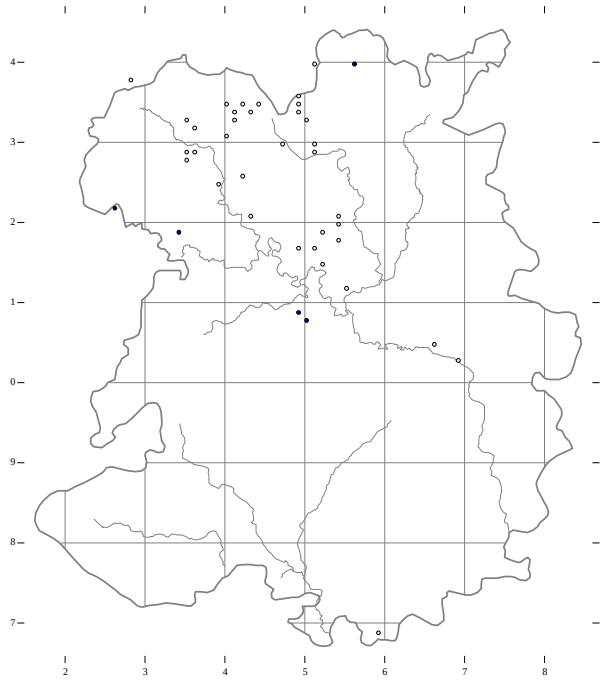
Anagallis tenella

Orobanche minor Sm., **Common Broomrape**, continues its expansion with its appearance in a car park at Sainsbury's supermarket at Meole Brace, Shrewsbury (SJ491101, Whild, 24th July). It was seemingly growing on *Brachyglottis greyi*. This brings the current number of sites to six – more than there have ever been in the past.

Luronium natans (L.) Raf., **Floating Water-plantain**, is arguably the most important plant in the county, being protected by international legislation and an excellent indicator of clear water habitats. Although it has not been found in a new site, it has now spread to the western end of Bomere Pool (SJ497082, Lockton, 25th August) following habitat restoration operations by Natural England. This is the first definite record of it in a new 10 km square, as it has only been seen at the eastern end of the lake before – although some old records may at times have been arbitrarily assigned to this square in some atlases.

There have been two very significant pondweed finds this year. Firstly, Dan Wrench found *Potamogeton lucens* L., **Shining Pondweed**, at Willey Ponds (SO6698). This species was last recorded in 1979 by Martin Wigginton, at Marton Pool, Chirbury. It has probably been overlooked at Willey because of the lack of public access. The second find was of *Potamogeton gramineus* L.,

Various-leaved Pondweed, at Berrington Pool (SJ5207) by Steve O'Donnell, 24th August 2014. It had been known there since 1801 (E. Williams) but was last recorded there in 1881 (W.E. Beckwith). Moreover, it became extinct in the county in 1885 when it was last recorded by Beckwith at White Mere. It seems highly likely that this is the consequence of actions taken by Natural England to restore the habitat and favourable condition of Berrington Pool, and that is has reappeared naturally from buried seed; in which case this is a great triumph for nature conservation, and we can only hope that it thrives there.

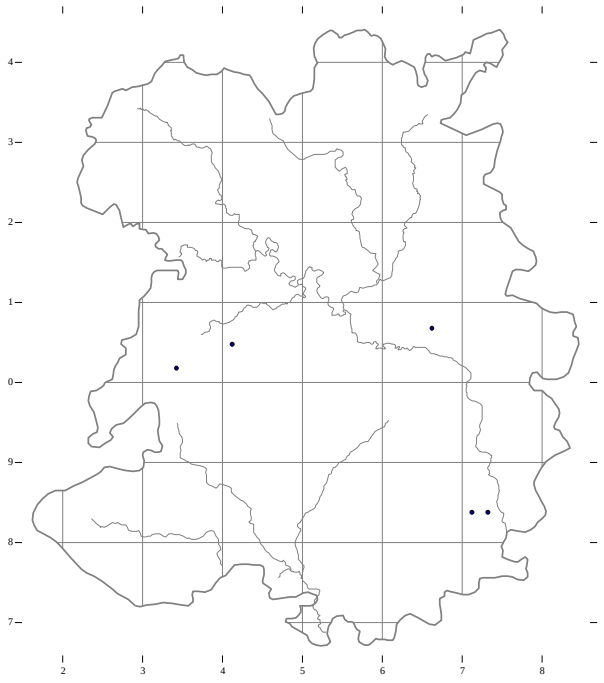


Luronium natans

Galanthus woronowii Losinsk., **Green Snowdrop**, was recorded by Dan Wrench at St Giles's Church, Shrewsbury (SJ507118, 4th February 2014). A first county record; it was undoubtedly planted but is well established.

Another very significant find was of *Festuca altissima* All., **Wood Fescue**, by Rob Rowe at Hope Coppice (SJ345013) on 27th May 2014. This is an axiophyte with very specific habitat requirements: it occurs by waterfalls in ancient woodland sites. Rob's discovery adds a 10 km square to the national map and brings the number of known sites in the county to five.

Festuca filiformis Pourret, **Fine-leaved Sheep's-fescue**, is possibly a rather overlooked species but it is probably also quite rare in the county. It was refound along the Severn Valley Railway at Upper Forge (SO728895) by Whild, Trueman and Wrench on 28th April. Then it was reported from a new site at Clee Liberty (SO5883) by John Handley on 16th June.



Festuca altissima

Granville Nature Reserve Field Visit May 2014

Penny Wysome

Granville local nature reserve covers 20 hectares of post industrial landscape typical of Telford and Ironbridge with its blend of archaeological heritage and wildlife habitat. Although the main vegetation is secondary woodland, on and between pit mounds there are discrete areas of grassland of some botanical interest though the site is managed primarily for invertebrates, notably insects.

Telford and Wrekin Unitary Authority own the reserve but the management is the responsibility of Shropshire Wildlife Trust. Two groups of volunteers, the Friends of Granville Country Park and the Wrekin Forest Volunteers work on the reserve, trying to maintain the biodiversity in the face of encroaching scrub and the heavy footfall of runners, bikers and dog walkers who enjoy the open access to the site. Butterfly Conservation are also involved, particularly with management recommendations for species such as the Dingy Skipper.

Armed with the management plan Ian Trueman led his band of botanists onto the meadows in the first BotSoc visit of this year on May 14th. The brief was to consider management strategies which the SWT and volunteer groups could implement in the coming winter. Barnyard meadow, a grassed over pit mound was the first call. Here we found *Centaurea nigra* Common Knapweed, *Lotus corniculatus* Bird's-foot-trefoil, *Lathyrus pratensis* Meadow Vetchling, *Myosotis discolor* Changing Forget-me-not, *Ranunculus bulbosus* Bulbous Buttercup, *Rhinanthus minor* Yellow-rattle, and *Trifolium pratense* Red Clover. This fair sprinkling of species verges on MG5, NVC mesotrophic grassland. This is under threat from coarse grasses and encroachment of hawthorn – despite the best efforts of the volunteers.

From here we walked down steps and past a well used piece of amenity grass where *Cruciata laevipes* Crosswort was thriving, to find Waxhill meadow. This is an area of short grass with several damp areas. Volunteers have taken out a lot of scrub, brambles and willow predominantly to try and allow the small herbs to survive. There is a more calcareous feel to this habitat with *Carex flacca* Glaucous Sedge present and *Linum catharticum* Fairy Flax recorded each year, together with *Trisetum flavescens* Yellow Oat-grass – though not seen this early. Two other sedges, *Carex leporina* Oval Sedge and *Carex otrubae* False Fox Sedge were joined by *Lotus corniculatus* Bird's-foot-trefoil, *Lathyrus pratensis* Meadow Vetchling and *Rhinanthus major* Yellow-rattle in flower and a few spikes of *Dactylorhiza praetermissa* Southern Marsh Orchid were pushing through.

Our third grassland was Muxton Marsh SSSI. This adjoins a permanently wet area, with sluices to control water levels, and is an area of grassland divided by a hedge which volunteers pleached 2-3 years ago. This allowed the grazing animals – horses, to be let on or off the SSSI area as required. Nearly all the adjoining land has been built over during the past 4 years so dog walkers have little choice but to use the reserve regularly. Moving a stile allowed some recovery of a much widened footpath but winter weather made the new pathway impassable in a very muddy gateway so the walkers have set up a new route very near to the species rich wetland area. Either side of the hedge is a zone of thistles, nettles and coarse grasses, the legacy of the shaded area overhung by the overgrown hawthorns which now have been disciplined into the hedge. Grazing has been partly effective but there is still a problem of constant regrowth of willow and rushes in the wet areas. The flora though is well worth protecting. Even this early in the season we found *Carex flacca* Glaucous Sedge, and *Carex otrubae* False Fox Sedge, *Dactylorhiza praetermissa* Southern Marsh Orchid,

Equisetum palustre Marsh Horsetail, *Eupatorium cannabinum* Hemp-agrimony, *Filipendula ulmaria* Meadowsweet, *Galium album* Hedge Bedstraw, *Juncus articulatus* Jointed Rush, *Lycopus europaeus* Gypsywort, *Mentha aquatica* Water Mint, *Oenanthe crocata* Hemlock Water-dropwort, *Schedonorus arundinaceus* Tall Fescue. Records show *Triglochin palustre* Marsh Arrowgrass, *Eleocharis palustris* Common Spike-rush and *Isolepis setacea* Bristle Club-rush occur and on a visit some weeks after ours, Robin Jukes-Hughes recorded a couple of dozen *Dactylorhiza praetermissa* in flower on Muxton Marsh, with a similar number of *Dactylorhiza incarnata*, mainly sub-species *pulchella* in another part of the park.

Recommendations:

1. Establish the status of the axiophytes across the 3 meadows.
2. Mowing of the drier meadows – Barnyard and Waxhill should be done at the end of July, no later, and cuttings baled and removed. The mower must go right to the edges of the sites where the coarser vegetation is encroaching and not just cut the middle.
3. Muxton Marsh could benefit from a stream water quality assessment, there may be some slight eutrophication into the wet end of the mire.
4. Probably this site should be managed as far as possible by grazing, although hay making or cutting and baling on the drier parts might be OK, alternatively a weakening cut and removal in mid-summer in seasons where there is undergrazing. There are some rather fertile and disturbed strips along the hedgerows which might usefully be cut and removed this year.
5. Perhaps consider using chemical methods to poison stumps of willow to slow down the regrowth.
6. Consider constructing a boardwalk across the muddy area to divert walkers from the SSSI.

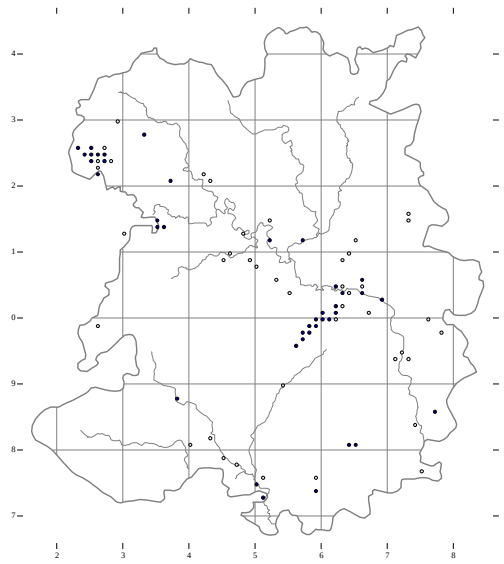
The efforts of SWT, Telford and Wrekin, WFV and the Friends of Granville have been admirable in protecting these little habitats – a concerted effort to get regular mowing and removal of clippings would really increase the prospect of enjoying the flora in subsequent years despite the multiple pressures on this populated area of Telford.

Plants to Look Out for in Autumn

Ruth Dawes

***Inula conyzae* – Ploughman's-spikenard in Asteraceae – Daisy family**

This brightly coloured, tall, perennial member of the daisy family is always a pleasure to find. Its height, purplish stems and numerous attractive bright yellow flowers with red tipped phyllaries make it easy to spot. Look out for it in scrubby places and wooded borders of old pastures and limestone quarries, rather than the open grassland. In Shropshire it grows on basic igneous rocks as well as limestone, but likes a shallow, dry, well-drained, stony soil. It has been found in the Oswestry uplands, on Wenlock Edge and Benthall Edge, Clee Hill and Loton Park, but is only locally frequent and has to be searched for. In the longer vegetation beside the paths at Llanymynech Rocks is a good place to start your search from July to September.



It is a somewhat southern species in the British Isles, extending as far north as Yorkshire and belongs to the "European Temperate Element." Its core distribution is in Central and South Eastern Europe.

The basal leaves can be mistaken for foxglove, which is a calcifuge, but the Ploughman's spikenard leaves are pleasantly aromatic, so give them a squeeze if you are not sure.

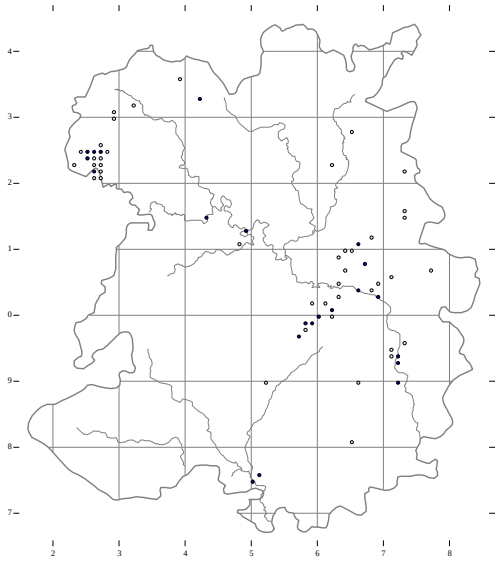
Flora Britannica explains its English common name as a rustic equivalent of the true Spikenard or Nard, *Nardostachys jatamansi*, which is in *Valerianaceae*, and comes from the Himalayas. *Nardostachys jatamansi* is a prized plant producing essential oils used in perfumery. John Gerard, the herbalist from Nantwich, is credited by some botanists with creating this misnomer for its rustic British counterpart, which was used for "sweetening the air in hovels."

***Erigeron acris* – Blue Fleabane**

Another native member of the daisy family, but a less showy one this time, low growing with dull purplish-mauve flowers. This one likes the open floors of limestone quarries and sand and gravel pits on dry, stony soils. In Shropshire, it occurs in the limestone quarries in the Oswestry uplands and Much Wenlock, but has been sparse elsewhere in the past. More recently, records from have been turning up from sand and gravel quarries at Bridgnorth, Shadwell and Ellesmere.

It is primarily a lowland species in the British Isles and occurs in sand dunes in coastal areas. The *New Atlas* shows many more records from the English Midlands than there were in the 1962 Atlas. Sadly, this species appears to have declined in South East and Eastern England, which is its core distribution area in the British Isles.

Now that the introduced *Conyza canadensis*, Canadian Fleabane, is spreading north in abundance, perhaps we should be looking out for the inter-generic hybrid between these two species, *Erigeron acris x Conyza canadensis*? This hybrid has been recorded in disturbed sandy places in Southern England. I have already seen the two species growing together at the Wood Lane bird reserve so I wonder how long it will be.

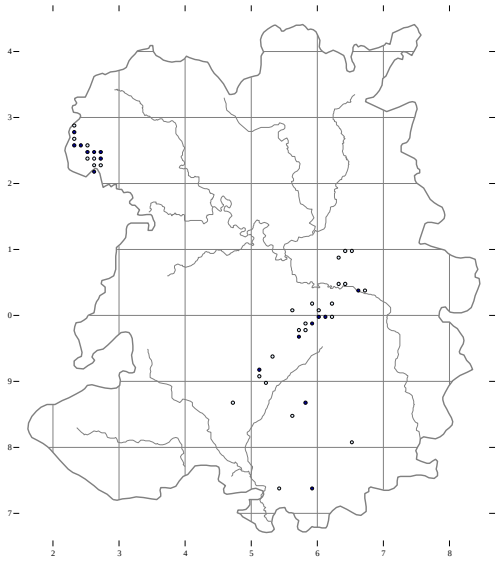


Again, the quarry floor at Llanymynech Rocks is a good place to start looking. July to September is the usual time. In the dry summer of 2014, many of the plants were past their best by the end of August.

***Gentianella amarella* – Autumn Gentian or Felwort in Gentianaceae - Gentian family**

This low growing plant is usually dull purple, when the five-merous flowers choose to open, which is only in warmth and sunshine. In Shropshire it grows very sparingly in calcareous pastures and limestone quarry floors or limestone spoil heaps. It occurs in the Oswestry uplands, from Wenlock Edge to Benthall Edge and on Brown Clee. It is present in Europe and North America and widespread in Asia. In the British Isles it is a mainly lowland species.

It is claimed to have a bitter taste to discourage grazing, but the rabbit population are fond of it. The plants have a thick cuticle (waxy layer) that minimises water loss by transpiration.



The Third Edition of *New Flora of the British Isles* splits the species into three sub species. Our Autumn Gentian appears to be *Gentianella amarella amarella*, separated out by corolla colour and size.

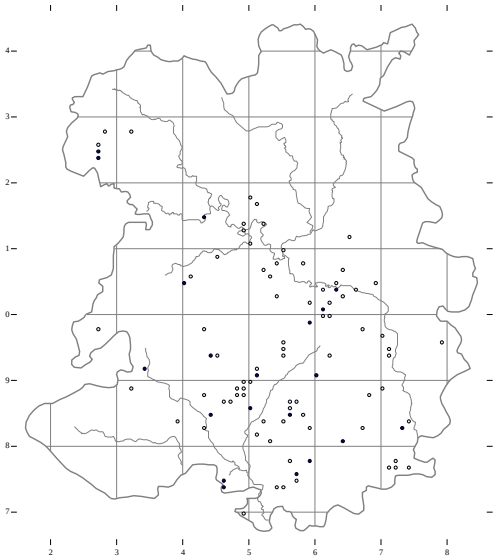
On the quarry floor at Llanymynech Rocks with the Blue Fleabane is once again a good place to find it from July to October.

Do look at it carefully. It would be so nice to re-discover its close relative, *Gentianella campestris*, Field Gentian, with its usually four-merous flowers, in Shropshire. Now considered to be absent from most of Southern and Central Britain, it was once much more widespread. The core distribution of *G. amarella* is more southern and it is a calcicole, whereas *G. campestris* is now mainly a northerner and usually avoids lime.

***Spiranthes spiralis* – Autumn Lady's-tresses in Orchidaceae – Orchid family**

This tiny, sweet-scented, white orchid, with its "braided" flowers like ladies plaits adorned with white ribbon, is the last of our orchids to flower, usually from early August into September.

The basal leaf rosettes appear in winter and wither by flowering time, but a new rosette will appear very close by ready for next year.



It is rare in Shropshire and prefers grassy slopes, roadside verges, lawns and limestone quarry floors. It does not tolerate competition and usually occurs on dryish, shallow soils over limestone in our county, although I have seen it on sandy soil inland in Somerset. It is a mainly southern species in the British Isles and was classed by J E Lousley as one of the "Continental Southern Element" species, found chiefly in Central and Southern Europe. It is deduced that they entered Britain from the south.

Its local stronghold is the quarry floor at Llanymynech once more. Look for it with the Blue Fleabane and Autumn Gentian, but I have to admit that the tresses are usually in the Welsh bits of the reserve. Tread carefully, they are hard to spot and hide amongst the Eyebright. Once you have found one, you will find more nearby. They were very sparse in August 2014 after a warm wet spring and a very hot dry summer. The vegetation was surprisingly long at the reserve at this time of year, which may have suppressed or hidden the tresses. There is a severe decrease in this species in Shropshire, probably due to too much competition from other plants at its Llynclys and Pant sites, but it also appears to have gone from the Buildwas and Ludlow area. The late naturalist, Bert Webster, used to carefully mow round his cluster of precious tresses on his lawn at Pant. I wonder if they are still there?

***Colchicum autumnale* – Meadow Saffron in Colchicaceae – Meadow Saffron family**

This beautiful, corm bearing, perennial, with its pink to pale purple crocus-like flowers shows its "Naked Lady" beauty in September, when no leaves are present to hide the tepals. It is separated from the true crocuses in the Iris family by its six stamens, instead of three.

Previously placed in Liliaceae, it is currently considered distinct enough to be in its own family. The ovary is subterranean at flowering time and the leaves and fruits appear in spring.

It occurs in scrub and open woods, old pastures and MG5 hayfields, sometimes under bracken, in dry to damp loamy soils or clay. It is destroyed by ploughing and reseeding.

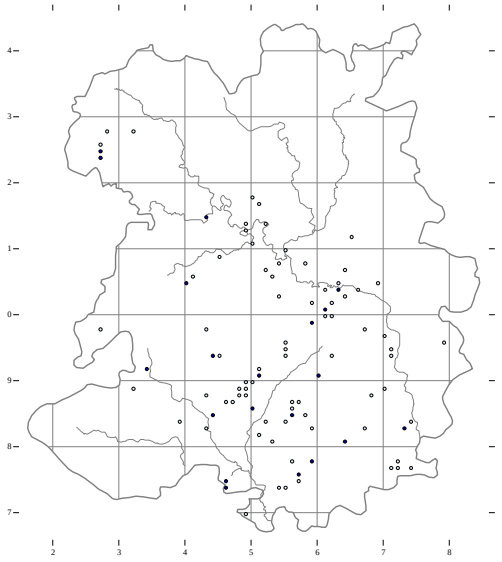
It was classed as sparse to frequent on Wenlock Edge, in Oswestry uplands, on the Clee Hill platform, Earls Hill, and Shropshire/Herefordshire border, but mainly absent from the plain in our 1985 *Ecological Flora*.

The New Flora of the British Isles classes it as native, but local, in Central and Southern Britain, even common around the Severn Estuary, scattered to Northern England and naturalised in the rest of the British Isles. It is usually a lowland species in the British Isles.

It is very poisonous and sometimes fatal to livestock and is therefore frequently grubbed out of pasture and relegated to scrubby woodland away from stock and to roadside verges. "Naked Ladies offer a moral lesson – for she is poisonous in all her parts."

The name *Colchis* comes from the Black Sea region of Georgia, Caucasus, where *Colchicum* was found in abundance. Colchicine (a poisonous alkaloid) has been valued as a medicine for treating gout since classical times.

Meadow Saffron can be found in small quantity in various places around Llynclys Common and on roadside verges in the south of the county, but I have to admit a sneaking admiration for the wonderfully named Llanmerewig Glebe nature reserve just over the border in Montgomeryshire. Meadow Saffron can be seen in lovely pink carpets all over an old meadow on this reserve.



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Thanks to Alex Lockton for the maps.

The Grasses Part 4.1 – the Clearly-branched Panicles

Ian Trueman

In most grasses the inflorescence is clearly branched and therefore by definition clearly a panicle. The branching and the arrangement of the panicle is often characteristic, but the overall shape usually changes through the flowering period, so that in most cases we need to examine the spikelet (the structure borne at the end of each branch) for a definitive identification.

Agrostis vinealis Brown Bent

Briza media Quaking-grass

Calamagrostis epigejos Wood Small-reed

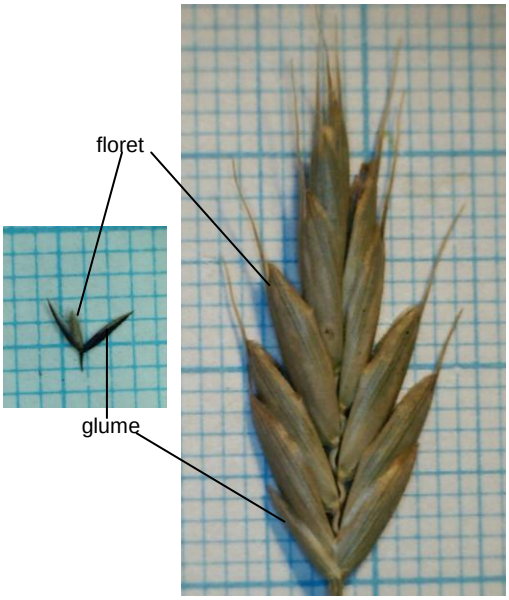
Festuca rubra Red Fescue

Some examples of grass panicles

The Grass spikelet The basic unit of the inflorescence, borne at the end of each branch. It consists of either a single **floret** (i.e. a small flower) or a tight **cluster of florets**, in either case with two sterile bracts at the base called the **glumes**. The floret often bears an **awn,** a fine bristle, usually attached to the **lemma,** the outermost scale

of the floret. The spikelet varies greatly in size. In Rye Brome *Bromus secalinus* it is 1-2 cm long but in the Bents *Agrostis* spp. it is only 2-3.5 mm long:

Spikelet of *Agrostis stolonifera* Creeping Bent (2-3 mm long)



Spikelet of *Bromus secalinus* Rye Brome (10-20 cm long excluding the awns)

Two examples of spikelets ×3; grid squares are 1mm x 1 mm

Spikelet form also changes: when the anthers are shedding pollen (**anthesis**), the spikelet (and the florets) typically gape open and when the fruit forms, the spikelet often closes up again. Early in the season the florets overlap, folded into one another; later they usually become more separate and distinguishable and late in the season they may drop, leaving only the empty glumes still present. Nevertheless, much identification can be achieved based on **the number of florets in the spikelet**, the **relative lengths of glume and the floret or florets**, and the **disposition and type of awn:**

<u>The main types of spikelet in grasses with clearly-branched panicles</u>

1. **Glumes clearly longer than the florets** and typically enclosing them at least before anthesis; if the florets are awned, awn usually **dorsal** (borne on the back) or **basal** (near the base) on the lemma and **geniculate** (bent in the middle)

2. **Spikelets essentially 1-flowered,** awned or not ……....**GROUP 1**
2. **Spikelets mostly 2-3 flowered**, one or more floret(s) almost always with a dorsal geniculate awn……....…..**GROUP 2**

1. **Glumes, (usually both), shorter than the florets**; if the florets are awned, awn attached at or near the tip of the lemma, awns more or less straight

3. **Spikelets of essentially one floret** ……**GROUP 3**
3. **Spikelets many flowered**, florets typically in two symmetrical rows one on each side of a hair-like axis or *rhachis*…….. **GROUP 4**

GROUP 1 Glumes clearly longer than the florets and typically enclosing them at least before anthesis; **spikelets essentially 1-flowered.** If the florets are awned, the awn is usually borne on the back or near the base of the lemma and bent in the middle.

Agrostis stolonifera *Phalaris arundinacea* *Milium effusus* *Calamagrostis epigejos*

Group 1 spikelets. *Phalaris* and *Milium* shown with and without glumes, *Calamagrostis* only without glumes. All × 8; Grid is of 1 mm × 1 mm squares.

All **Bents** *Agrostis* species fall into this category; their many-branched panicles, rather like 3-dimensional feathers, all have tiny single-flowered spikelets circa 2-3 mm long and were described in part 1 of this series. In some species the lemma bears a dorsal or basal awn.
Reed canary-grass *Phalaris arundinacea*, is a common, tall, broad-leaved reed-like waterside plant but with a membranous ligule and with a large panicle of densely-clustered spikelets with keeled glumes (other *Phalaris* spp. have spike-like panicles).
Wood-millet *Milium effusum* is a large elegant old woodland grass with a large, long-branched panicle and florets producing shiny, millet-like grains.
Small-reeds *Calamagrostis* are large grasses distinguished by the long hairs sprouting from the base of the floret (usually longer than in the photograph). **Wood Small-reed** *Calamagrostis epigejos* occurs mostly in woodland margins (also post-industrial sites) and **Purple Small-reed** *C. canescens* in shaded or unshaded mires. The latter has a shorter ligule and the upper surface of the leaf blade is hairy; the inflorescence also tends to droop to one side. Neither is common and the latter is distinctly uncommon.

GROUP 2 Glumes (at least one) clearly longer than the florets and typically enclosing them except at anthesis**; Spikelets mostly 2-3 flowered, one or more floret almost always with an awn attached on the back of the lemma, awn typically bent in the middle**

This is a large group of at least eight genera in Shropshire; also the spike-like panicle of Sweet Vernal-grass *Anthoxanthum odoratum* is sometimes sufficiently branched to go in the panicle group and would then key out here. Ignoring *Anthoxanthum odoratum* (see part 3 Autumn 2013), three types of spikelet are seen in Group 2:

The first type comprises only **Heath-grass** *Danthonia decumbens*, the little blue-green grass of heathland, acid grassland and interestingly limestone pasture. This has spikelets more resembling those of Group 4 but the floret group is exceeded in length by both glumes. It also differs from the others in Group 2 in that all the lemmas are awnless and the ligule consists entirely of hairs.

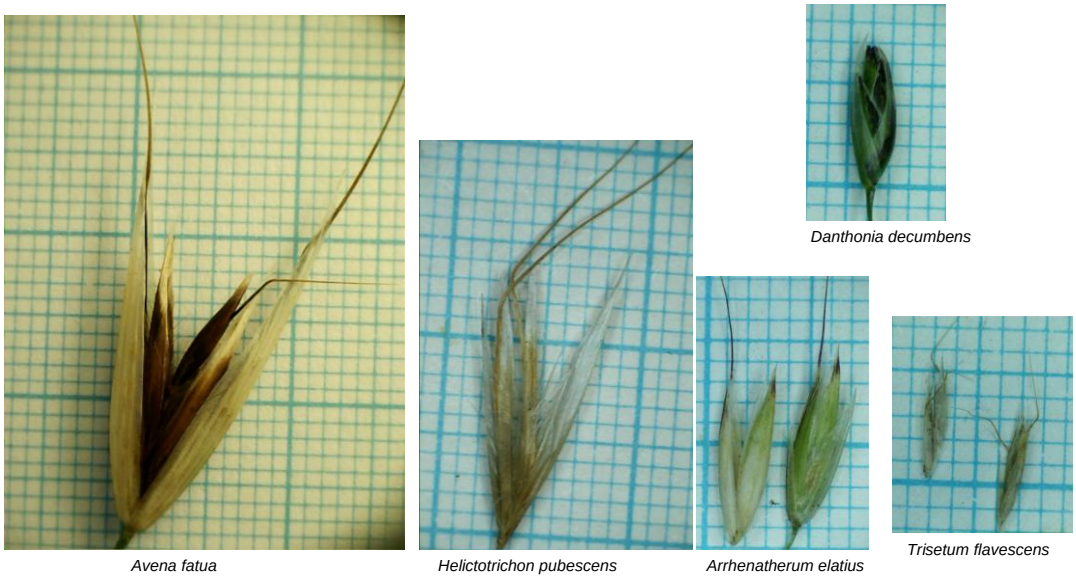
The rest of Group 2 (except cultivated Oat) have at least some florets with (usually dorsal) awns. In second group, the 'Oats and Oat-grasses', these awns are conspicuous and protrude well beyond the glumes. In the third group, 'Soft-grasses and Hair-grasses' the awns are less conspicuous and often protrude little or not at all. The awns are moderately conspicuous in Wavy Hair-grass, but it is the only perennial in Group 2 with bristle-like, as opposed to flat, leaf blades.

The **Oats and Oat-grasses** include five genera:

1. Annuals with pendulous spikelets 2-3 cm long…….. Oats *Avena*
1. Perennials with non-pendulous spikelets circa 1 cm long or less……..2

2. Spikelets circa ½ cm long long……. Yellow Oat-grass *Trisetum flavescens*
2. Spikelets circa 1 cm long……...…3

3. Each floret with a geniculate dorsal awn, spikelet more than 1 cm long …….Downy Oat-grass *Helictotrichon pubescens*
3. One floret with a geniculate dorsal awn, the other with awn weak and straight or absent, spikelet up to 1 cm long ……False Oat-grass *Arrhenatherum elatius*

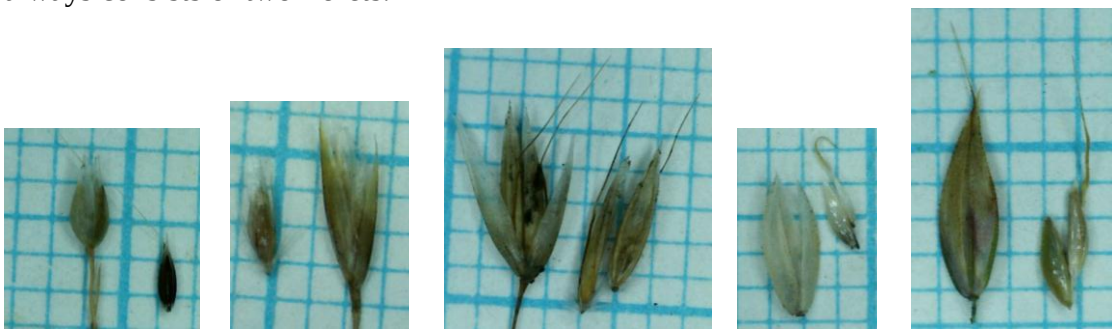


Spikelets of Heath-grass and Oatgrasses. *Avena fatua* ×2, others ×3 (1mm grid) (*Arrhenatherum elatius* and *Trisetum flavescens* shown with and without glumes)

Cultivated **Oat** *Avena sativa*, in common with most cereals has spikelets which do not break up and disperse at maturity. It usually lacks awns and the florets are smooth. It may occur as a weed.
Wild-oat *Avena fatua* is a common weed of crops and waste land, the florets are awned and bear conspicuous stiff forward-pointing hairs, especially near the base. The spikelet breaks up into individual florets at maturity. There are other Wild-oats which break up differently than in *Avena fatua*, but they are not recorded in Shropshire.
Yellow Oat-grass *Trisetum flavescens* is a small grass of unimproved grassland with shoots usually beset with sparse, downwards-pointing hairs. The spikelets are glossy

yellow or golden, 2-4-flowered and it is the smallest of the grasses with prominent dorsal geniculate awns.
False Oat-grass *Arrhenatherum elatius* is an almost ubiquitous coarse, slightly hairy grass, always recognisable from its bright yellow roots.
Downy Oat-grass *Helictotrichon pubescens* is even hairier-leaved than *A. elatius* and is specific to old neutral or calcareous grassland. Its larger spikelets than those of *Arrhenatherum*, with two or more geniculate awns per spikelet, give it away. We are still looking for Meadow Oat-grass *Helictotrichon pratense* on the Shropshire limestones. The spikelet has three or more florets and the leaves are stiff and glabrous.

In the **Soft-grasses and Hair-grasses, the** third type within Group 2, the spikelets are typically smaller than in all the Oat-grasses except for Yellow Oat-grass *Trisetum flavescens*, i.e. ½ cm long or less. Except in the bristle-leaved Wavy Hairgrass *Deschampsia flexuosa*, the awns are much less conspicuous than in the Oat-grasses and often protrude little or not at all from between the enclosing glumes. The spikelet always consists of two florets.



Spikelets of Hair-grasses and Soft-grasses x5 (all shown with and without glumes)

Silver Hair-grass *Aira caryophyllea* is a delicate little winter annual of droughty, slightly base-enriched substrates. It is usually taller but with smaller spikelets than Early Hair-grass *Aira praecox* which has spike-like panicles. In both, there are two florets, both bearing a very fine dorsal geniculate awn. At maturity the silvery hue and the open panicles of *A. caryophyllea* are usually very striking.
Wavy Hair-grass *Deschampsia flexuosa* is abundant or even dominant in many acid grasslands and heaths and open woodlands. In heathland the shiny, coppery-red glumes and the long, crimped branches of the panicles are usually very characteristic, but the colour may be more silvery in woodlands. It is quite strongly awned, but unlike the rest of Group 2 it is a bristle-leaved perennial, distinct from the other perennial bristle-leaved grasses Mat-grass, which has basal cushions of sheaths and one-sided spikes and the bristle-leaved fescues (*Festuca ovina* and *rubra*), which have Group 4 panicles and chocolate-brown roots (white in *D. flexuosa*). (Druce recorded the very similar but much rarer *Deschampsia setacea* at the meres in the 19th century).
Tufted Hair-grass *Deschampsia cespitosa* forms large, dense tussocks of sharp-edged leaf blades in a variety of impeded drainage situations (included in shade) and also in limestone woodland. The panicles can be striking, up to 50 cm long on tall stems. Woodland variants with smaller (3 mm) spikelets may be subsp. *parviflora.*
In the **Soft-grasses** (*Holcus* spp.), the panicles are relatively dense and many-spikeleted compared with those of the Hairgrasses and two conspicuous papery, strongly keeled glumes enclose the two florets except for the tip of the awn.

Yorkshire Fog *Holcus lanatus*, almost ubiquitous, is possibly our commonest grass. It is tufted, softly hairy and one of the two florets has a hooked awn from near the tip of the lemma; the awn can often be seen projecting sideways between the glumes.
Creeping Soft-grass *Holcus mollis* is also a very common grass, especially in woodlands; it is shade-tolerant but restricted to fairly acid substrates. Unlike Yorkshire-fog it has a formidable rhizome underground and it is usually almost hairless except for conspicuously bearded nodes ('hairy knees'). The awn is more clearly dorsal than in *H. lanatus*, protruding beyond the tips of the glumes and straight not hooked. Cope and Gray say that there are sterile hybrids which resemble *H. mollis* but are more hairy and have shorter, less exserted awns.

GROUP 3 At least one, and usually both, glumes shorter than the florets, **spikelets essentially of one floret**; if the florets are awned, awn attached at or near the tip of the lemma, more or less straight

Melica uniflora

Panicum miliaceum

Spikelets with glumes shorter than floret and with essentially a single floret . Both × 5

Wood Melick *Melica uniflora* is the only grass in this group which is at all common in Shropshire. Even in this species there is a small clump of tiny sterile lemmas as well as the single fertile floret in the spikelet. The chunky spikelets are borne sparingly on long, bare branches. A medium to small grass typical of old woodlands and shade on modestly base-rich soils, sometimes on shallow soils or even rock outcrops. Mountain Melick *Melica nutans* has a spikelet with several fertile florets and falls in Group 4.
The Millets and Cockspur (*Panicum* and *Echinochloa*) are uncommon casuals with chunky, mostly awnlesss single florets of the type shown (vaguely!) in the figure: rather onion-like, with two small glumes at the base. The inflorescence type varies tremendously, but the leaf ligule consists of hairs or there is no ligule at all.
Loose Silky-bent *Apera spica-venti* and Dense Silky-bent *Apera interrupta* have also been recorded as casuals; The single floret has a fine dorsal awn 5+ mm long; One glume is the same length as the floret, only one is shorter than the floret.
Whorl-grass *Catabrosa aquatica* usually has 2 or 3 florets, so will be included in Group 4.

GROUP 4 Glumes both shorter than the florets, **spikelets many flowered,** florets typically in two symmetrical rows one on each side of a hair-like axis or *rhachis*; if the florets are awned, awn attached at or near the tip of the lemma, ± straight.

This is another large group, including the genera *Briza*, *Bromus*, *Catabrosa*, *Catapodium*, *Dactylis*, *Festuca*, *Glyceria*, *Melica nutans*, *Molinia*, *Phragmites*, *Poa*, *Puccinellia* and *Vulpia.* We will tackle Group 4 next time if allowed!

The genus *Sphagnum* a guide part 5: Section *Squarrosa*

Martin Godfrey

Introduction

In this fifth part of the "Guide" I am going to look at section *Squarrosa.* This section only has two species, *S. squarrosum* and *S. teres.* The former is common and usually very easy to identify, the latter rather less common, being restricted nationally to more northern and western parts, and can also be rather more tricky to identify. Both species show the "big bud" feature in the capitulum (see Part 1 of the guide – Newslettter Spring 2012) and either may have squarrose branch leaves – that is, leaves in which the tip is bent sharply back which, en-masse, gives the plant a rather prickly appearance. The branch leaves in both species have rather broad bases with long, narrow, leaf tips. The stem leaves are quite large and are broadly tongue shaped.

Sphagnum squarrosum

This is quite a chunky plant, usually a light bright green in colour which invariably has squarrose branch leaves so that the whole mass of plants looks rather prickly, see Fig 1.

Fig 1. *S. squarrosum* habitat picture.

The capitulum usually has a "big bud", Fig 2, although you may have to look rather hard for it.

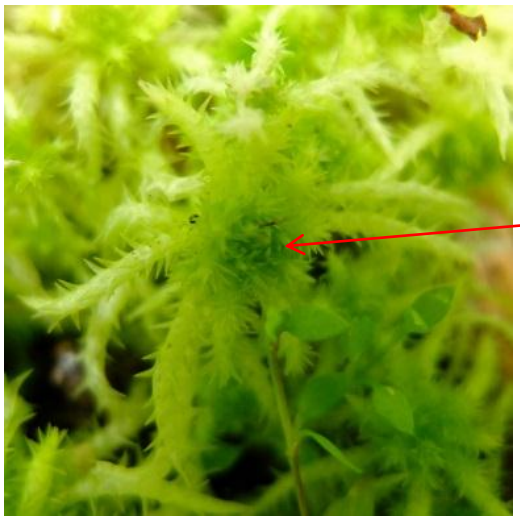


Fig 2. *S.squarrosum* capitulum with bud

Somewhat unusually for a *Sphagnum* it grows in nutrient enriched wet ground, often in woods or rather untidy grass and rush habitats. It is quite common and is usually found in carpets rather than hummocks, and these can be quite extensive.
There is really no other moss quite like *S. squarrosum* so it is usually very easy to identify. The only possible confusion species are some populations of *S. palustre* growing in shade. These can have rather squarrose branch leaves but these leaves have the broad hooded appearance and the stem the wide, easily visible, cortex of the plants of section *Palustre* (see part 2 of the guide, autumn 2012).

Sphagnum teres

When growing well, the ginger colour of this medium sized species makes it quite conspicuous amongst the wet grass where it grows, Fig 3.

Fig 3. *S. teres.*

It, too, usually has a conspicuous bud in the capitulum, see Fig 4.

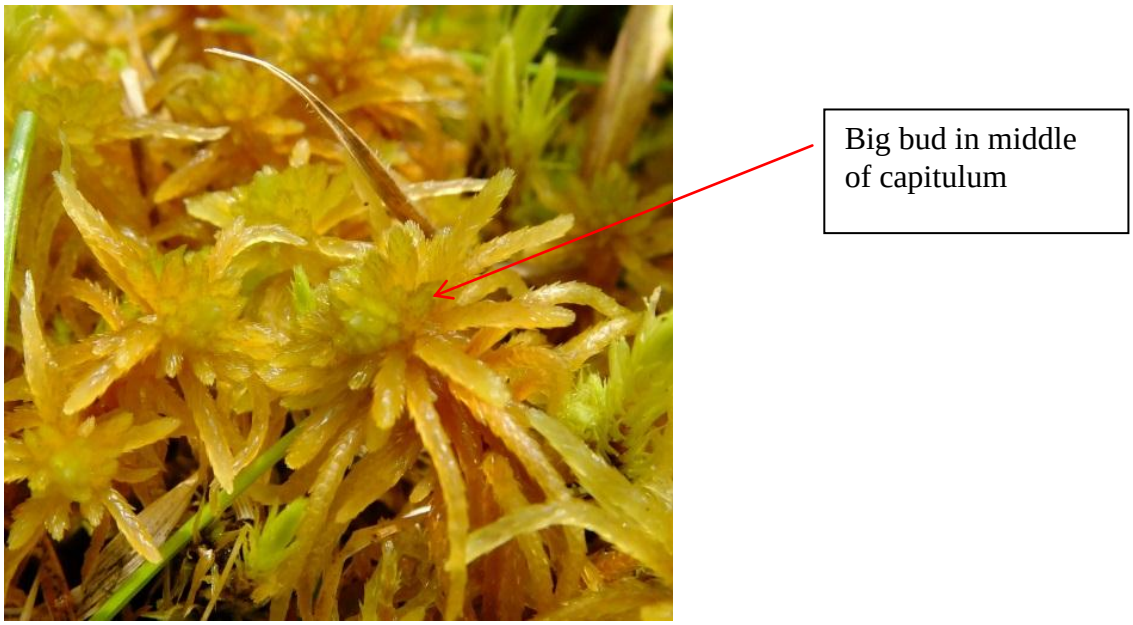


Fig 4. *S.teres* capitulum with bud.

Despite its section it rarely has squarrose leaves, although these may develop in shade forms. Instead confirm the identification by looking for the usually dark stem and the 2-3 spreading branches in each branch fascicle. At times it can be rather anonymous and difficult to identify.
I usually associate this species with rather base-rich flushes where it grows either in small loose cushions or as a narrow band beside running water.

Problem plants
Even though they don't look much alike these species are placed in the same section based on very similar microscopic characters and it is to the microscope that you will need to turn if you find something you cannot place.

Distribution in Shropshire
S. squarrosum is really quite common in the county and is found throughout, Fig 5, although there are plenty of gaps for your new records!
S. teres on the other hand has a far more restricted distribution, Fig 6. This may be a reflection of the lack of suitable habitat, on the other hand given that it isn't a terribly obvious species I wonder if it might be under-recorded. An interesting challenge would be for you to get away from the Long Mynd area and go to flushes that you may know and see what you can find.

Sphagnum squarrosum (Spiky Bog-moss)

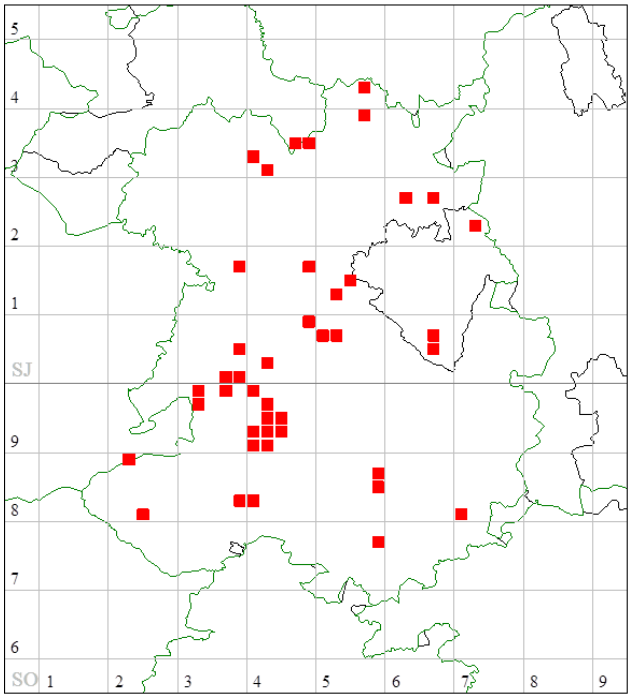


Fig 5. *Sphagnum squarrosum* distribution in Shropshire

Sphagnum teres (Rigid Bog-moss)

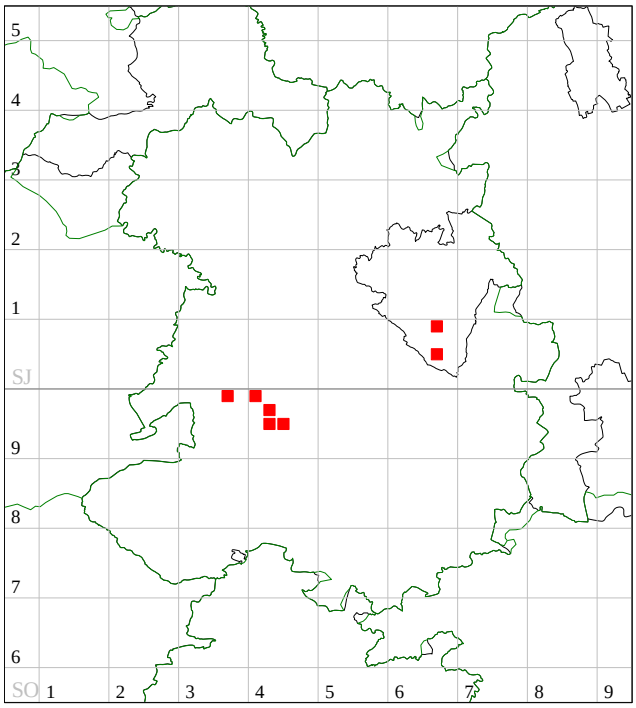


Fig 6. *Sphagnum teres* distribution in Shropshire

Llanymynech Rocks Nature Reserve

Fiona Gomersall

Llanymynech is one of a cluster of Shropshire Wildlife Trust reserves in the North-west of the county and the most magnificent. A huge cliff can be seen for miles around and predictably the area is attractive to climbers as well as walkers and naturalists. The 22 hectare nature reserve straddles the border with Wales and is shared with Montgomeryshire Wildlife Trust. The outcrops of Carboniferous Limestone provide excellent habitat for a large number of species; butterflies and flowering plants usually come out top with visitors but Llanymynech holds great interest for other natural history groups as well as archaeology enthusiasts. The area was of huge importance for quarrying of limestone in the past for the production of fertiliser and lime for building and batteries of limekilns and also winding houses can still be seen. Most quarrying ceased in the 1950s but Llynclys Quarry, further north was active until quite recently.

Following closure of the quarries the rocks, spoil heaps and quarry floors were mostly left to re-vegetate naturally and what you see today are mostly secondary vegetation communities. Ecologically the grassland and successional scrub communities are the most important habitats since they support a large number of calcicoles, some of which are rare in Shropshire but also in a National context. Butterflies include both the Small Pearl-bordered Fritillary and the Pearl-Bordered Fritillary along with Grizzled and Dingy Skipper and more recently Grayling, with most of these relying on scrub as well as the grassland. Management of the reserve therefore aims to keep the grassland areas open but at the same time allowing for successional scrub development; the balance of which is not always easy. The reserve is grazed by a flock of Hebridean sheep but volunteer work parties are also employed to keep the scrub, namely Traveller's-joy, *Clematis vitalba* and Dogwood, *Cornus sanguinea* at bay.

The cliff ledges and quarry faces support very interesting plagioclimatic communities which include the rare *Sorbus anglica* Whitebeam, and *Rosa micrantha* Small-flowered Sweet-briar. *Sorbus aria* Common Whitebeam, grows elsewhere on the reserve.

It is the Orchidaceae which bring most 'plant hunters' to Llanymynech. *Orchis mascula* Early-purple Orchid is the first to appear in the springtime followed by *Platanthera chlorantha* Greater Butterfly-orchid. June brings *Ophrys apifera* Bee Orchid and a host of *Dactylorhiza fuchsii* Common-spotted orchids, but *Anacamptis pyramidalis* Pyramidal Orchids, can be numerous too. *Neottia ovata* Common Twayblade, also flowers in June along with the rare *Gymnadenia conopsea* Fragrant Orchid, which cropped up elsewhere on the grasslands this year. The beautiful *Spiranthes spiralis* Autumn Lady's-tresses, make their appearance in mid-August but can be well hidden in the vegetation.

The calcareous or limestone grassland at Llanymynech does not fit easily into the National Vegetation Classification system. Whild Associates came to this conclusion when they carried out an extensive survey of the whole reserve in 1998. The closest fit was GC2d *Festuca ovina-Avenula pratensis* grassland but two of the key indicator species, *Koeleria macrantha* Crested Hair-grass, and *Helictotrichon pratensis* Meadow Oat-grass, are absent from the reserve and nor do they occur anywhere else in vc 40. This type of grassland appears in other parts of the Oswestry Hills, again with these species generally missing. It is

possible that this ‘Oswestry’ community might have been recognised as a distinct sub-community within the *Festucetum ovinae calcareum*, Whild Associates (1998) if Rodwell (1992) had used data from the Oswestry Hills for the National Vegetation Classification.

Other typical species of calcareous grassland and of interest are the lovely Common Rock-rose, particularly abundant on the numerous anthills on the Welsh side, and also *Scabiosa columbaria* Small Scabious and *Arabis hirsuta* Hairy Rock-cress.

Under the main cliff is some extremely short but very species-rich grassland where you can find *Poterium sanguisorba* Salad Burnet, *Blackstonia perfoliata* Yellow-wort, and many other flowering species.

You’ll need another visit in late summer to see a further tranche of lime-loving species in flower: *Gentianella amarella* Autumn Gentian, *Clinopodium vulgare* Wild Basil, *Clinopodium ascendens* Common Calamint, *Erigeron acris* Blue Fleabane, *Inula conyzae* Ploughman’s-spikenard, *Carlina vulgaris* Carline Thistle and the *Spiranthes spiralis* already mentioned.

The woodland at Llanymynech classified as, W8 *Fraxinus excelsior-Acer campestre-Mercurialis perennis* is fairly species-poor but a welcome refuge in hot weather. In places, the vegetation thick in ferns and dense with *Clematis vitalba* vines hanging like lianas is reminiscent of rainforest. Depending on the time of year you will find: *Lathraea squamaria* Toothwort, *Daphne laureola* Spurge Laurel, *Sanicula europaea* Sanicle and *Galium odoratum* Woodruff.

References

Rodwell, J.S., (1991-1995) *British Plant Communities* Vols. 1-4. Cambridge University Press.

Whild Associates (1998) *A vegetation survey of Llanymynech Rocks.*

How to Record Plants in Shropshire

Alex Lockton (alex.lockton@bsbi.org)

With the new Flora out of the way we can think about the next stages in botanical recording in Shropshire. It is difficult to know what to record after a Flora project has just finished because one tends to assume that it has all been done rather thoroughly. But of course that is not true – there is always lots out there to be found, and there are opportunities for all members of the Botanical Society to make a contribution. But please note that not all records are useful to us. In particular, short lists of common plants are not valuable. We need data that can either tell us something we don't already know or which in future will be useful in an analysis such as detecting change.

There are four types of data that we use in botanical recording, and everyone can contribute to at least one of them.

1. **Detailed individual records**. These are by far the most interesting and useful records, and they are the obvious ones for Bot Soc members to contribute. The main difficulty is deciding what species to record – it has to be something unusual or interesting. Hopefully the new Flora will help people to know when they have a first county record or a rarity. Other appropriate subjects include difficult plants and axiophytes.
   The way to make a detailed record is to get an accurate grid reference, a precise date, a detailed description of abundance and habitat, and – most importantly – proof of the identification. This could be a specimen plus determiner's name, and a photograph. You must make a detailed record if you do find something new or rare.

2. **Monad Lists**. A monad is a 1 km x 1 km square, which are clearly marked on Ordnance Survey maps and are therefore easy to identify. The aim is to record all the species present. A good plan is to assign an afternoon to recording a monad – 3 or 4 hours, at least. Try to get at least 100 species; 150 or more is a good list in most monads. An alternative is to record the monad many times over a year and just aggregate the list. That way we don't get the precise date of each record, but you should be able to produce a longer list – 200 species or more in most squares. Our hypothesis is that such lists could be repeated in future, creating lists that would indicate change but, to be honest, that has not really been tested yet. Over large numbers of squares it should work.

3. Rather similar to monad lists are **Site Lists**. The aim is to find a simple, discrete site and record everything in it thoroughly. The site needs to fall into or approximate a 1 km square, because that is the grid reference that will be assigned to it (overly precise site centroids are not used). Nature reserves, woods, meres, small hills, farms and churchyards can be appropriate sites to survey. A single field is usually too small to bother with. Don't worry too much if the site projects a small distance across a 1 km boundary but, if anything rare occurs in the extremities, you will of course complete a detailed individual record instead. Larger sites like the Long Mynd or the Stiperstones need to be divided into their 1 km squares. A site list would normally be at least 100 species and would be made over the course of a single day or a whole year.

4. **Quadrats**. By far the best form of recording is the vegetation quadrat – it is precisely localised, repeatable and analysable. But you do need to know what you are doing to record a quadrat, so if you are not absolutely sure then please don't bother. Normally a quadrat would have a full species list for a patch of vegetation (between 2 m square and 50 m square) plus abundance and a photograph as well. Email me if you want to record quadrats.

Submitting records

We are very happy to receive records on paper or electronically. You can download the recording form from the web site, www.bsbi.org.uk/shropshire.html and make your list on the front, with detailed records on the back.

For electronic records you can download an Excel table listing all the plants from the web page and use this for creating a list. If you have Mapmate, you can input records and then export them as a spreadsheet for submission.

Records should be sent to the county recorder, Sarah Whild (s.whild@mmu.ac.uk), as soon as possible after they are made, so they can be checked while the information is still fresh in your mind and you can go back to the site and have another look if need be. If you have found anything new, you might be asked to provide evidence in the form of a specimen or a photo (in fact, many good recorders these days will have taken 50 photos of any field trip they go on, so they can check things later, and this is very beneficial practice). Please do not be worried if your records are questioned – we all make mistakes and your aim must be to convince everyone that you have got it absolutely right.

Specimens should be pressed and dried and mounted on a sheet of A4 paper and put into a plastic pocket. For aquatics and charophytes, fresh specimens can be accepted but check with the county recorder that she can accept fresh specimens! Any hybrid mints or hybrid willows should be supported by vouchers and of course, any first county records.

Accessing records

It can be very useful to be able to access previous records for an area or a species to help in your recording, but do be careful about working from old lists – it can be very tempting to guess that an unknown plant is what was given on the list; but you should never make a guess on that basis. Always identify plants properly and, as general advice, it is safer and more fun to make your own list in the first place and then compare it with the old records.

In Shropshire recorders are particularly fortunate in being able to access all the data for the county from either the Ecological Data Network web site (http://shropsbotdata.org.uk/index.php/shrops) or from the NBN Gateway (https://data.nbn.org.uk/). There is nothing like it for any other county in the British Isles – everywhere else it is effectively impossible for the ordinary recorder to access any data; so do make use of these facilities.

We can also give you feedback, which usually comes in one of two forms: comparing your records with previous ones, or giving you a report on all your records. If you ask, we can also analyse your records to tell you what your strengths and weaknesses are.

So please carry on recording, and enjoy learning new plants.

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Membership is **£15 a year or £30 for three years** and is **due for renewal on January 1st of the year shown**. Please send cheques made out to *Shropshire Botanical Society*, to Mark Duffell 19 Compton Mews, Ford, Shrewsbury, SY5 9NX. If your name is in bold this draws attention to the fact that your renewal is due in January and this will be your last newsletter.

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Keith Bell, Shrewsbury	2016
Carol Bickerstaffe, Much Wenlock	**2015**
John & Denise Bingham, Kidderminster	**2015**
Peter Boardman, Shrewsbury	**2015**
Mary Brenan, Acton Burnell	**2015**
David Broughton, Leeds	2016
Shirley Burton, Nantwich	2017
Arthur Chater, Aberystwyth	2017
John Clayfield, Clunton	2017
Philip Cornish, Shrewsbury	2017
Mags Cousins, All Stretton	2017
Helen Critchley, Pontesbury	2016
Ruth Dawes, Trefonen	2017
David Dench, Bridgnorth	**2015**
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Llew Guest, Shrewsbury	**2015**
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Susan Lewis, near Ellesmere	2016
Amber Lewis-Bolton, Whixall	2017
Angela Lidgett, Nantwich	2017
Carol Little, Shrewsbury	2016
Keith Little, Shrewsbury	**2015**
Alex Lockton, Whitstable	(hon.)
David Marcham, Newport	2016
Margaret Markland, Shrewsbury	2017
Peta Marshall, Shrewsbury	**2015**
Frances McCullagh, Wolverhampton	2017
Mike Middleton, Shrewsbury	2016
Jane Morris, Shrewsbury	2016
Rose Murphy, Camborne	(hon.)
Patricia Noble, Newport	**2015**
Martin Noble, Telford	2017
Steve & Elise O'Donnell, Albrighton	2016
Philip Oswald, Cambridge	(life)
John Packham, Bridgnorth	(life)
Pat Parker, Baschurch	**2015**
David Pearman, Truro	(hon.)
Tess Pearson, Bishops Castle	2017
Don Perritt, Malpas	**2015**
Preston Montford Field Centre	(hon.)
Jan Pursaill, Shrewsbury	2016
Matthew Race, Birmingham	2017
Tim Rich, Cardiff	(hon.)
Paul Roberts, Chirk	**2015**
Andrew Robinson, Shrewsbury	2017
Rob Rowe, Craven Arms	2017
Yousef Samari, Shrewsbury	**2015**
David Smith, Telford	2016
Sandra Spence, Craven Arms	2017
Clive Stace, Ullesthorpe	(hon.)
Sarah Stafford, Leominster	(life)
Anne Stephens, Bishops Castle	2017
Janet Stone, Shrewsbury	**2015**
Sue Swales, Shrewsbury	2016
Sue Swindells, Oswestry	2016
Ian Thompson, Shrewsbury	2017
Jo Thompson, Shrewsbury	2016
John Thompson, Harmer Hill	(hon.)
Kate Thorne, Church Pulverbatch	2016
Rosemary Thornes, Shrewsbury	2017
Mary Thornton, Oswestry	2016
Bob Thurston, Upton Magna	**2015**
Sue Townsend, Shrawardine	2016
Ian Trueman, Wolverhampton	(life)
Chris Walker, Condover	(life)
Tom Wall, Lydbury North	**2015**
Hilary Wallace, Hereford	**2015**
Rod Warren, Shrewsbury	2017
Sarah Whild, Shrewsbury	2016
Gillian Wilson, Pontesbury	2016
Dan Wrench, Shrewsbury	2016
Penny Wysome, Wellington	2016

Gentianella amarella Autumn Gentian at Llanymynech Rocks, August 2014, photo Ruth Dawes

Inula conyzae Ploughman's-spikenard at Llanymynech Rocks, August 2014, photo Ruth Dawes